



Minutes of the
Twentieth Meeting of
the



**Industry Steering
Committee on
Wellbore Survey
Accuracy**

**Inaugural Meeting as
the
SPE Wellbore
Positioning Technical
Session**

Houston, Texas
October 1st 2004

Attendees:

Name	Company	E-Mail
Harry Wilson	Baker Hughes	harry.Wilson@integ.com
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Ed Stockhausen	ChevronTexaco	edjs@chevron.com
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1. Welcome

Andy Brooks welcomed everyone to the meeting on behalf of BHI. Andy covered HSE and administrative issues for the meeting.

Matthew Rhodes welcomed the attendees on behalf of SPE. Matthew reviewed the original mission statement of the committee and how the committee evolved into the SPE Wellbore Positioning Technical Session. He also reviewed the agenda for the day and introduced a review of actions resulting from meeting number 19.

2. Review of Actions from ISCWSA 19.

Advanced Well Design Text Book – Chris Chia explained that it was the committee’s role to produce a chapter on survey and survey quality control issues. An e-mail, already sent to those thought to be interested, outlines the chapter and seeks volunteer authors for a number of unassigned sections.

Depth Sub-Committee Update – Chris Chia said the Standard Nomenclature Group is working to produce a document in two parts. A depth problem statement and a glossary of terms.

Action items are:

1. Chris Chia to split problem statement and glossary into 2 separate documents - Done
2. Chris Chia to review oilfield glossary texts to reconcile any depth error glossary differences - Done
3. Bill Allen to post revised draft documents up onto WPTS website for wider review, and to send directly to team 2 members by end of October - Pending
4. Team 2 members to send feedback/changes to Chris Chia by end of November - Pending
5. Chia/Allen to revise documents and incorporate any feedback from WPTS website, then post revision 1 documents to WPTS website by year end - Pending
6. Chia/Allen/Team 2 to prepare and submit an information-only article for industry publication by year end - Pending

Steve Holehouse reported on the work of the validation of depth error terms group.



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WITSML Update – Subject of later presentation

Gyro Error Model – Subject of later discussion.

SPE WPTS – Subject of later discussion.

3. Survey Frequency Sub-Committee

Ed Stockhausen promised that the sub-committee would have a detailed update and presentation ready for the next meeting. John Turvill pointed out that the original idea of forming a frequency sub-committee was to develop an additional error term to deal with survey frequency. Following further discussion Bill Calhoun of Chevron/Texaco volunteered to lead the sub-committee and Paul Rodney volunteered to serve on the committee.

4. MWD Survey Accuracy Improvement Using Multi-Station Analysis – SPE 87977

Chris Chia presented the paper.



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5. Underestimation of Positional Uncertainty at Low Inclinations

Andy Brooks reported on the recognised problem of underestimation of uncertainty at low inclination. The problem lies in the misalignment term, which is handled better in the gyro model than the MWD model. Andy believes a small change to the standard error model will correct the situation. A change is currently undergoing testing prior to a formal recommendation for a change to the standard model.

6. Management of the Error Models

Harry Wilson suggested that there needs to be a process to manage changes to the error models. He proposed the formation of a standing sub-committee authorized to approve changes to the standard error models. Matthew Rhodes pointed out that there must be a system to publicise changes to the standard models without the extreme of publishing a paper. He suggested that the SPE website may be the ideal vehicle for this. Harry asked if it would be possible for interested parties to register to receive notification of approved changes. Bill Allen will investigate these issues. Chris Chia suggested that proposed changes should be presented to the full committee. A general discussion followed with the apparent result that most felt that the standing sub-committee should be authorized with the final decision on changes. Volunteers for the standing sub-committee:

Andy Brooks – BHI
John Barlow – Gyrodata
Wayne Phillips – SLB
Anne Holmes – Halliburton

7. SPE Wellbore Positioning Technical Session

Matthew discussed a number of issues with respect to the committee now being a technical session of the SPE. He showed the constitution and promised to have it posted on the website. As a formal part of SPE the committee must have elected officers. These are proposed

Chairman – Matthew Rhodes (2001-2005)

Membership Chair	Chris Chia (2004-2006)	Harry Wilson (2006-2008)
Secretary	Steve Mullin (2004-2006)	Ross Lowden (2006-2008)
Web Master	William Allen (2004-2006)	Steve Grindrod (2006-2008)

The committee voted and passed all nominees unanimously.

Matthew informed the committee that it may be necessary for him to resign the chairmanship in mid 2005. Discussion followed regarding possible replacements, Bill Calhoun was suggested. Steve Mullin said he believed it is important that chair remain with an operator. Matthew Kirkman suggested that someone from a company that does not collect survey data should be acceptable. Steve pointed out that these companies tend to be suppliers of service to the survey companies but even disregarding that point there is a certain gravitas and applied non-commerciality from having the chair lie with an operator. All nominations for the chairmanship should be sent to Matthew Rhodes.

Matthew demonstrated the website (online community) and encouraged everyone to actively make use of the facility. Andy Brooks informed everyone that the latest version of Microsoft Explorer is needed to view all parts of the site. All questions regarding the online community should be directed to Bill Allen.

8. WITSML Update

Matthew Kirkman updated the committee on the development of the Well site Information Transfer Mark up Language. The standard does deal with the transfer between compliant applications of all well trajectory information from planning through definitive survey. Interested parties should contact Matthew for more information.

9. Depth Correction Residual Uncertainty

Angus Jamieson briefed the committee on work carried out by Tech21 into depth correction residual error. Apparently the work largely confirmed the current models and the original work by Roger Ekseth.



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10. Trip Retrievable Inertial Position System (TRIPS)

Angus also spoke a research project being undertaken by Tech21 and British Aerospace, funded by B.P. The concept is to adapt an artillery mounted inertial navigation system for downhole use. Preliminary testing at the site of the Cairngorm vehicular railroad showed encouraging results. More testing is planned at the same site in November. Interested parties can obtain more information from Angus.

11. Gyro Error Model Implementation

The paper describing the standard gyro error model was presented by Torgeir Torkildsen at this weeks SPE ATCE. The paper is, "Prediction of Wellbore Position Accuracy When Surveyed with Gyroscopic Tools", SPE 90408.

Torgeir led a discussion to give the gyro suppliers and software companies an opportunity to describe their progress on implementation of the model.

BHI – Andy Brooks provided error model inputs for Seeker and RIGS.



Gyrotrack is currently undergoing further development to improve accuracy and functionality. Andy said error model parameters will be developed for the system once this work is complete.

Andy also showed some results from his testing of BHI's software implementation of the standard model.

Gyrodata – John Barlow informed the committee that parameters for all Gyrodata tools are ready to go and will be made available to all software vendors.

Landmark – Landmark did not have a representative present; however Stein Havardstein said that Jerry Codling had informed him that the next release of Compass will have the model implemented.

Paradigm – Phil Dickson demonstrated the implementation work to date in Director. Phil said he expects the work to be completed and the new release of Director to be late this year or early next.

SDC – Brett van Steenwyk said that development of error parameters was a work in progress, still a subject of internal discussion and work. SDC are currently enhancing their gyro sensor for improved accuracy and temperature rating. This will require further error term development. Parameters should be ready Q1 next year.

SLB – Wayne Phillips said the implementation will be in next years work flow.

12. p3 Correlation Coefficient

Andy Brooks explained the correct application of the correlation coefficient for well to well avoidance calculations. More information available from Andy.

13. Wrap Up

Matthew Rhodes concluded the meeting by explaining that he would be sending out a series of e-mails on October 4, to test the likelihood of recipients spam filters blocking committee communications.

There was discussion regarding the next meeting. Torgeir volunteered Statoil to host the next meeting in Oslo, early May 2005. This kind offer was accepted. In order to improve future planning it was also provisionally agreed that Paradigm would host the Oct 2005 meeting in

Dallas or Houston to coincide with SPE ATCE. Matthew thanked Andy Brooks and BHI for providing the venue and catering for this and the depth sub-committee meeting.